English

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ARMOR+ LCS

Specification

Model	VH600LSWA	VH600LBWS
Case Type	Super Tower	
Dimension (H*W*D)	600 x 245 x 625 mm 23.6 x 9.6 x 24.6 inch	
Side panel	Transparent window	
Sliding motherboard tray	Yes	Yes
Cable management	Yes	Yes
Sliding hood	Yes	Yes
Adjustable PSU bridge	Yes	Yes
Material	All Aluminum	Front door: Aluminum / Chassis: 1.0mm SECC
Color	Silver	Black
Cooling System	- Front (intake) : 140 x 140 x 25mm blue LED fan, 1000rpm, 16dBA or 120 x 120 x25 mm fan (optional) - Rear (exhaust) : 120 x 120 x25 mm TurboFan, 1300rpm, 17dBA - Side ((intake) : 230 x 230 x 20mm blue LED fan, 800rpm, 15dBA - Bottom (intake) : Two 140 x 140 mm fans (optional) or two 120 x 120 x25 mm fan (optional) - VGA (intake) : 140 x 140 x 25mm fan (optional) or 120 x 120 x25 mm fan (optional)	
Motherboards	9.6" x 9.6" (Micro ATX), 12" x 9.6" (ATX), 12" x 13" (Extend ATX)	
Drive Bays -5.25" Drive Bay -3.5" Drive Bay -3.5" Drive Bay (Hidden)	 7 (3 occupied by LCS module) 1 (Convertable from one 5.25" drive bay) 7	
Front I/O	e-SATA connector x 1, USB2.0 x 4, IEEE 1394 Firewire x 1, HD Audio	
Expansion Slots	10	
Liquid Cooling System Applicati on	Liquid Cooling System: - Three 5.25 Drive Bay design: liquid cooling system built inside - Quick Disconnect Connector: Automatic non-spill valves, robust material one hand operation - Performance Motorsports radiator: (A) Dimension of radiator : H 153 x W 120 x T 28 mm (B) Adjustable 120mm blue LED silent fan (1600~2400RPM) - P500 liquid pump : Powerful DC 12V liquid pump (500L/hr) - All copper water block: For Intel P4 775/478 and AMD AM2/K8 - Flow TX: Flow meter for liquid cooling system - Reservoir: Contains 320 c.c. of liquid capacity - Water tube: Transparent UV tube (3/8") , industrial-grade rubber tube (3/8", pre-assembled)	

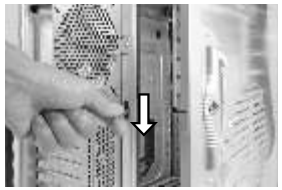
Chapter 2 Case Mechanical Operation

2.1 How to Open the Side Panel

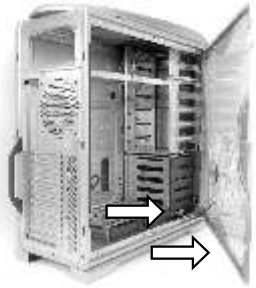
Open the transparent side panel

To remove the transparent side panel, please remove upper and bottom thumb screws on the back of the case.

Please find side panel key in the back of the case, and open the side panel. Make sure the side panel lock is opened.

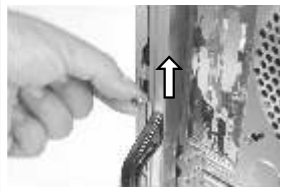


Push down the thumb screw to open the side panel.

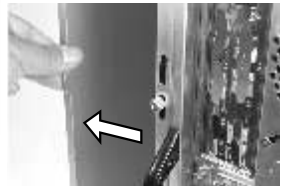


Open the right-hand side panel

To remove the right-hand side panel, please remove upper and bottom thumb screws on the back of the case.

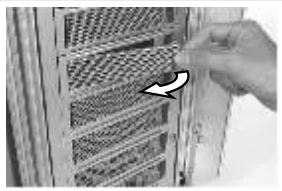


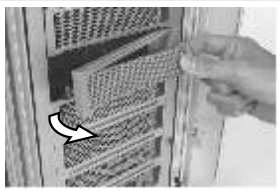
Pull up the thumb screw to open the side panel.



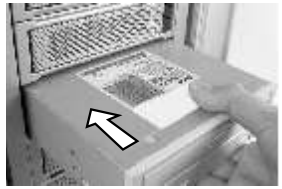
ARMOR+ LC5

2.2 5.25" Device Installation





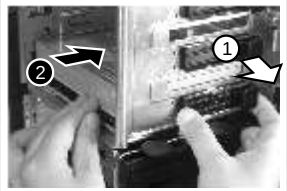
Remove the 5.25" drive bay cover as shown.



Put 5.25" device into the drive bay till the locked-position.

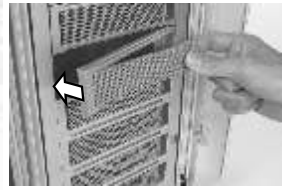
Notice:
It is possible to secure the 5.25" device by screws if not feel stable enough.

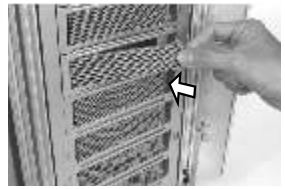
How to remove 5.25" device?



Pull the right-hand side of the lever to remove the 5.25" device.

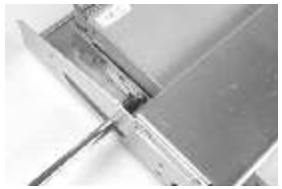
How to put back the 5.25" drive bay cover?





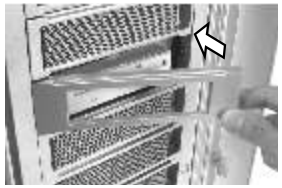
Install the 5.25" drive bay cover as shown.

2.3 3.5" Device Installation



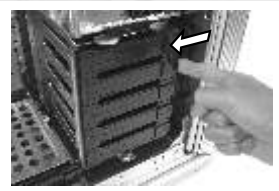
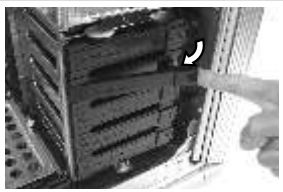
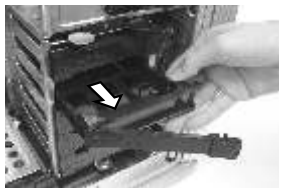
Place 3.5" device on the tray and fasten it using the screws provided.

Slide the drive device into the bay and secure the tray by 5.25" slot-in kit.



Install the 5.25" to 3.5" adaptor cover provided in the tool box to the case as shown.

2.4 HDD Installation

Remove the HDD tray by pressing the handle and pull the tray out.

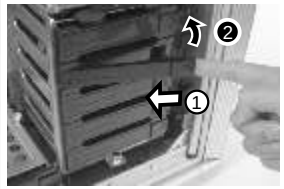
Place HDD on the tray.

Secure HDD using the clips onto the HDD tray for both side.

English

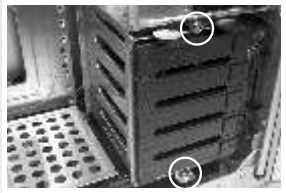
2.5 How to Remove the HDD Cage

Slide the HDD tray back to the drive bay.

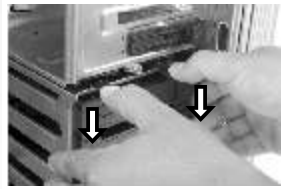


Press the handle to lock the HDD tray.

Organized HDD cable management.



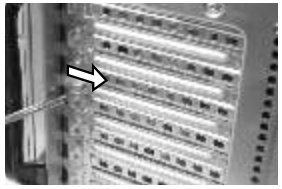
Unscrew the thumb screws of the cage.



Push the handle down and pull the cage out.

2.6 PCI Slot Tool-Free Usage

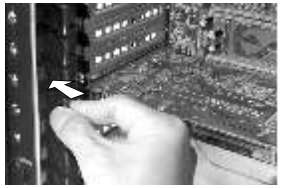
Release the plastic clip as shown.



Take off the PCI bracket.

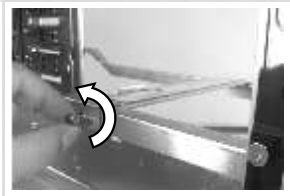
Locate Graphic Card to the motherboard through fixing it on the space of PCI bracket and insert it to the PCI slot.

Notice:
Fix the pin into the hole.



Push back the plastic clip to secure the Graphic Card.

2.7 Power Supply Installation



Take off both side panels and unscrew the thumb screws from both side of PSU supporting bridge.

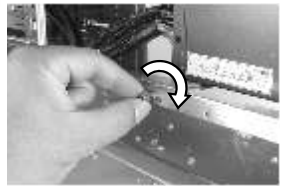
Place power supply over the location as shown.

Fasten power supply by screws included.

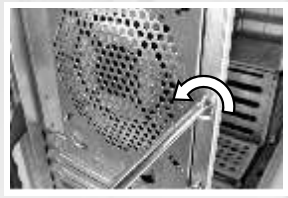
English

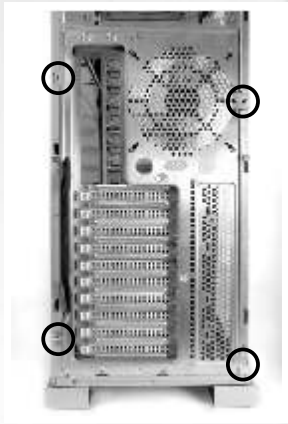
2.8 Sliding Motherboard Tray

Adjust PSU supporting bridge to the appropriate position.

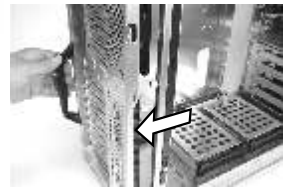


Fasten both side of PSU supporting bridge using the thumb screws.





Remove the screws from the back of the chassis.



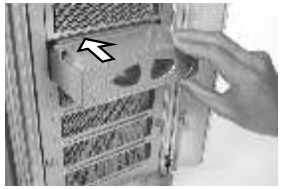
Slide the motherboard tray towards the back of the case to remove it from the case.

2.9 How to open top sliding hood

Top sliding hood

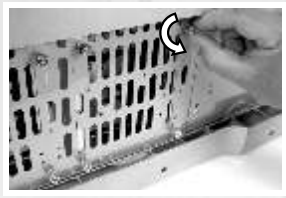
The top sliding hood allows easy LCS maintenance.

Storage draw (optional)

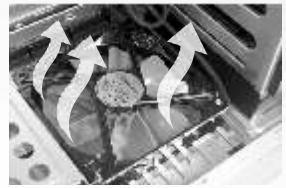


Please find the storage draw from the provided tool box. Then, put the storage draw into the drive bay till the locked-position.

2.10 Swappable HDD Module/ Fan Module (Optional)



Lay down your case and unscrew the thumbscrews to remove the HDD cage

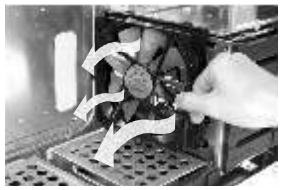


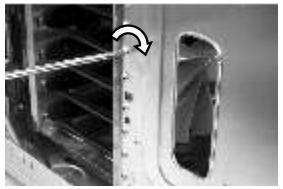
Put a fan and secure it by screws and thumb nuts provided in the tool box.

Notice:
The direction of fan airflow should be as shown.

2.11 VGA Fan Installation (Optional)

Install 140mm fan to the fan holder provided in the tool box.





Secure the fan holder to the motherboard tray by screws.

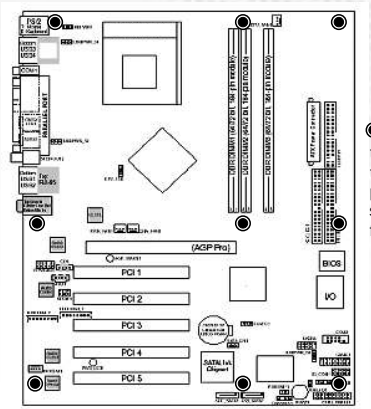
Notice:
The direction of fan airflow should be as shown.

3.1 Motherboard Installation

Each motherboard has different standoff layout. It is highly suggested that you refer to your motherboard's manual when installing motherboard into the Case. Armor+ is applicable with Extend ATX, ATX & Micro ATX motherboards. Your motherboard may require a special I/O Panel, which should be included with your motherboard.

Placement Direction:
When installing the motherboard, make sure you follow the direction provided by your motherboard manufacturer. On most standard motherboards, the edge with external ports goes to the rear part of the chassis. It is highly recommended that you install CPU, heat sink and modular components before fixing the motherboard inside the chassis.

This side towards the rear of the chassis



= the locations of the screw holes. Note these locations and place included standoffs on the chassis first.

Above illustration is a sample of what the motherboard's layout. For more detail screw hole placement, please refer to your motherboard manual.

3.2 Case LED connection

On the front of the case, you can find some LEDs and switch leads (POWER SW*1, POWER LED*1, H.D.D. LED*1, RESET SW*1)
Please consult user manual of your motherboard manufacturer, then connect these leads to the panel header on the motherboard. These leads are usually labeled; if not, please trace them back to the case front to find out their source.

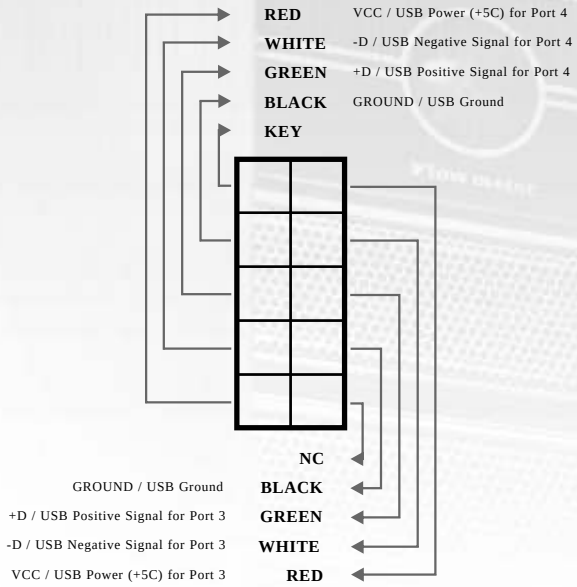
- POWER LED
  connects to your M/B at the PLED
- POWER SW
  connects to the PWR connector on the motherboard.
- H.D.D LED
  connects to the 2-pin labeled HDD LED connector
- RESET SW
  connects to the RSW connector on the motherboard

3.3 USB 2.0 & IEEE 1394 Firewire Connection

USB connection

Please consult your motherboard manual to find out the section of "USB connection".

USB Function



IEEE1394 Firewire connection

Please consult your motherboard manual to find out the section of "IEEE1394 Firewire connection".

1394 Function

TPA-	ORANGE	→	BLUE	TPA+
GROUND	BLACK	→	BLACK	GROUND
TPB-	RED	→	GREEN	TPB+
	KEY	→	WHITE	VP
	NC	→	BLACK	SHIELD

3.4 Audio Connection

- Please refer to the following illustration of Audio connector and your motherboard user manual.
- Please select the motherboard which used AC'97 or HD Audio (Azalia), (be aware of that your audio supports AC'97 or HD Audio (Azalia)) or it will damage your device(s).
- On some motherboards, the connectors for Audio are not the same as the drawing below. Please check with your motherboard manual before installing.

PORT1 L	RED	→	BLACK	AUD GND
PORT1 R	BROWN	→	BLACK	PRESENCE#
PORT2 R	YELLOW	→	ORANGE	SENSE1_RETURN
SENSE_SEND	PURPLE	→	KEY	
PORT2 L	BLUE	→	GREEN	SENSE2_RETURN

AUDIO AZALIA Function

Front Microphone input Signal	MIC IN	RED	→	BLACK	GROUND	Front Audio Ground
Front Microphone Power	MIC POWER	BROWN	→	NC		
Front Right Channel Audio Signal	R-OUT	YELLOW	→	YELLOW	R-RET	Rear Right Channel Audio Signal
	NC		→	KEY		
Front Left Channel Audio Signal	L-OUT	BLUE	→	BLUE	L-RET	Rear Left Channel Audio Signal

AUDIO AC'97 Function

3.5 eSATA connection

Connect this to your motherboard at SATA.

Chapter4 Other

4.1 Toughpower / Purepower / TR2 power supply series (optional)

The Thermaltake Power Supply series specification meets latest Intel & AMD dual & Quad core processors and NVIDIA & AMD high performance graphic cards; it offers plenty of functions, which mainly include:

1. Automatic Fan Speed Control: All power supply can detect the inside heat and automatically adjust the fan speed to provide adequate airflow.
2. Ultra Silent: Ball bearing fans with high reliability 140mm or 120mm cooling fan and super low acoustic noise under all load condition.
3. Modularized Cable Management: To eliminate clutter and improve airflow inside the case.
4. Dedicated Graphic Card Power: reduce the loading on current PSU and no need to upgrade current PSU while running multi graphic cards mode.

The functions can assure all Thermaltake Power Supply meets the balance in noise control and heat exhausted. All power supply provides complete protection function as follow:
1. Over power protection.
2. Short circuit protection on all output.
3. Over voltage protection / Under voltage protection.
4. Over current protection.
5. Over temperature protection.

Besides, Thermaltake enables the quality assurance of all power supply: 100% Hi-POT and ATE Function Test, 100% Burn-In and AC Input cycled on/off under high temperature condition. Furthermore, it has been approved by UL, CUL, TUV, CB, FCC, CE, and BSMI.

There are three main products line of Thermaltake PSU which divided into Toughpower, Purepower (include Purepower RX) and TR2 (include TR2 RX) series. Please refer to
http://www.thermaltake.com/product/Power/power_index.asp

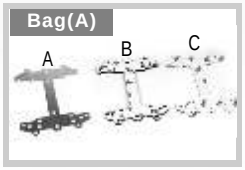
Chapter5
Liquid Cooling Installation

5.1 Components check

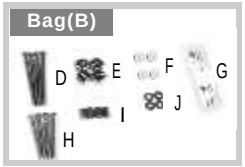
All copper water block
For Intel P4 775/478 and AMD AM2/K8

UV sensitive 1000 cc
Coolant x 1
Refill Bottle

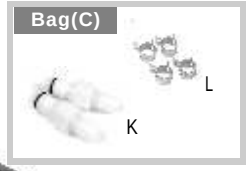
Water tube
Transparent UV tube (3/8")



Clips for :
- Intel LGA 775 & P4 478
- AMD AM2 & K8
A - Metal H-type clip
B - Cushion
C - Insulator



D - 50mm screws x4
E - Thumb nuts x4
F - White washers x4
G - Thermal compound
H - 38mm screws x4
I - Stand offs x4
J - Red washers x4



K - Quickconn Connecter X2
L - Hose clips(for tube) x4

5.2 Installation steps

We strongly suggest the following installation procedures. Failure to comply may result in leaks and damaged components.

- Components check
- Install Waterblock P27
  - 5.3.1 Intel LGA 775
  - 5.3.2 Intel P4 478
  - 5.3.3 AMD K8
  - 5.3.4 AMD AM2
- Install Water tube P37
- Install Quickconn Connecter P38
- Connector the Quickconn connector P39
- Refill Coolant P39
- Power on the system P42
- Complete installation

ARMOR+ LCS

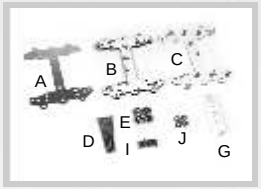
English

5.3 Install waterblock

5.3.1 Secure Waterblock onto CPU (Intel LGA 775)

Install the Clip on Motherboard

Intel LGA 775
Motherboard



Components for LGA 775:
A-Metal H-type clip
B-Cushion
C-Insulator
D-50mm screws
E-Thumb nuts
G-Thermal compound
I -Stand offs
J -Red washers

Tear off the tape on the back of the insulator (C) and place it on the metal H-type clip(A).

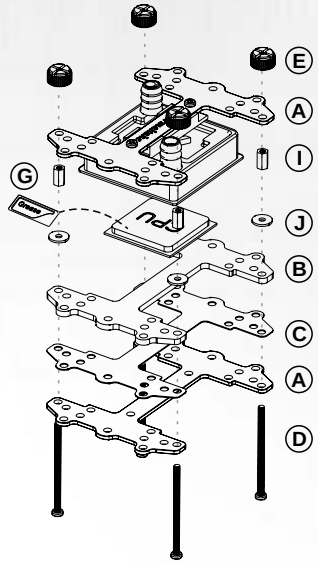
Note: Placing the cushion onto the motherboard with the adhesive will prevent you from removing the cushion in the future. If you are planning to remove the cushion for future use, please don't remove the protective tape.

Combine the insulator(C) and the cushion (B) using the adhesive.Stick the metal H-type clip(A) with the insulators (BC). Tear off the protective layer to adhere it onto the motherboard.

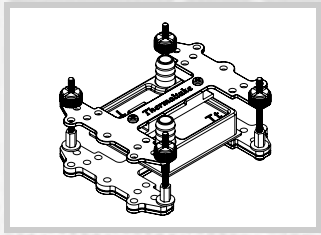
Attach H-type clips(including ABC) on the back side of motherboard.

Install Waterblock on Motherboard

Exploded View



Completed View



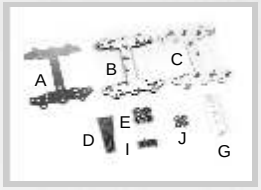
1.Insert the screws (D) through the clip(ABC) into the four holes on the Motherboard.
2.Put the washers (J) along the screws to prevent the electric current.
3.Put the stand offs (I) along the screws to fix the screws on the motherboard.
4.Apply a thin layer of thermal compound(G) onto the processor.
5.Place waterblock on the processor through the screws and fix it by thumb nuts(E).

English

5.3.2 Secure Waterblock onto CPU (Intel P4 Socket 478)

Install the Clip on Motherboard

Intel P4 Socket 478
Motherboard



Components for P4 478:
A-Metal H-type clip
B-Cushion
C-Insulator
D-50mm screws
E-Thumb nuts
G-Thermal compound
I -Stand offs
J -Red washers

Tear off the tape on the back of the insulator (C) and place it on the metal H-type clip(A).

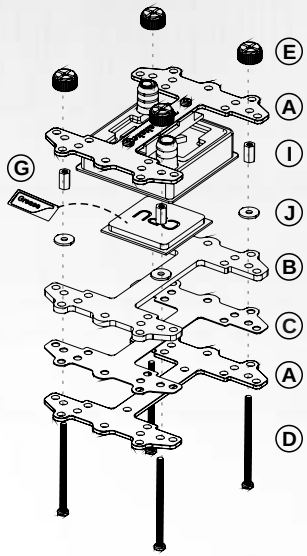
Note: Placing the cushion onto the motherboard with the adhesive will prevent you from removing the cushion in the future. If you are planning to remove the cushion for future use, please don't remove the protective tape.

Combine the insulator(C) and the cushion (B) using the adhesive.Stick the metal H-type clip(A) with the insulators (BC). Tear off the protective layer to adhere it onto the motherboard.

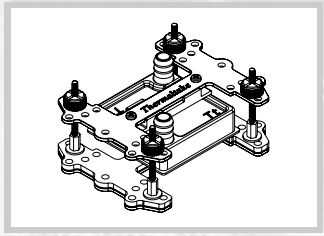
Attach H-type clips(including ABC) on the back side of motherboard.

Install Waterblock on Motherboard

Exploded View



Completed View



1.Insert the screws (D) through the clip(ABC) into the four holes on the Motherboard.
2.Put the washers (J) along the screws to prevent the electric current.
3.Put the stand offs (I) along the screws to fix the screws on the motherboard.
4.Apply a thin layer of thermal compound(G) onto the processor.
5.Place waterblock on the processor through the screws and fix it by thumb nuts(E).

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English

5.3.3 Secure Waterblock onto CPU (AMD K8 Socket 754 / 939 / 940)

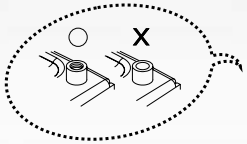
A. Install by back plate for motherboard (Standard installation)

Install the Clip on Motherboard

AMD K8
Motherboard

Remove the
retention frame
from motherboard.

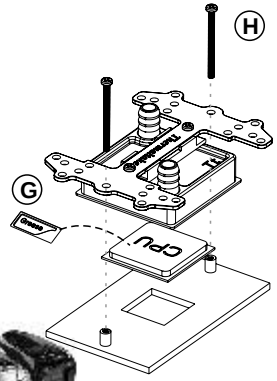
Components for
AMD K8:
G-Thermal compound
H-38mm screws



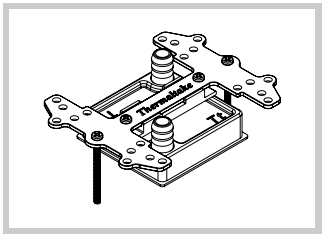
Check Your Back Plate!
A. If the back plate does have threaded stand offs, please continue with standard installation.(5-3-3 A)
B. If the back plate does NOT have threaded stand offs, please continue with 5-3-3 B.

Install Waterblock on Motherboard

Exploded View



Completed View



1.Apply a thin layer of thermal compound(G) onto the processor.
2.Place waterblock on the processor.
3.Secure the waterblock on the motherboard by using screws(H).

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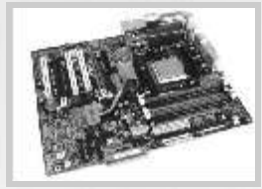
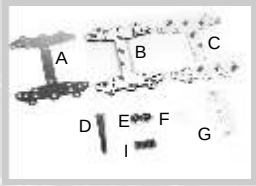
B. Install by clips bundled in package

Install the Clip on Motherboard



AMD K8 Motherboard



Components for AMD K8:
A-Metal H-type clip
B-Cushion
C-Insulator
D-50mm screws
E-Thumb nuts
F-White washers
G-Thermal compound
I -Stand offs

Remove the retention
module from the motherboard.

Remove the back plate on
back side of motherboard.

Tear off the tape on the back of the insulator (C) and place it on the metal H-type clip(A).

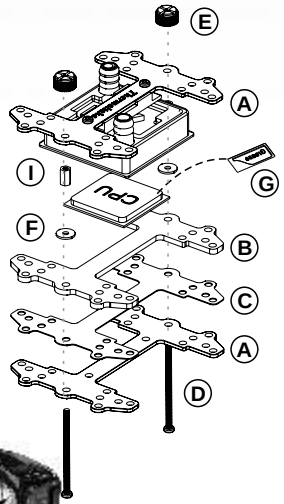
Note:
Placing the cushion onto the motherboard with the adhesive will prevent you from removing the cushion in the future. If you are planning to remove the cushion for future use, please don't remove the protective tape.

Combine the insulator(C) and the cushion (B) using the adhesive. Stick the metal H-type clip(A) with the insulators (BC). Tear off the protective layer to adhere it onto the motherboard.

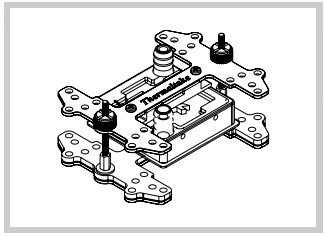
Attach H-type clips(including ABC) on the back side of motherboard.

Install Waterblock on Motherboard

Exploded View



Completed View



1.Insert the screws (D) through the clip(ABC) into the two holes on the Motherboard.
2.Put the washers (F) along the screws to prevent the electric current.
3.Put the stand offs (I) along the screws to fix the screws on the motherboard.
4.Apply a thin layer of thermal compound(G) onto the processor.
5.Place waterblock on the processor through the screws and fix it by thumb nuts(E).

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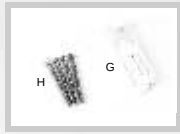
5.3.4 Secure Waterblock onto CPU (AMD Socket AM2)

A. Install by back plate for motherboard (Standard installation)

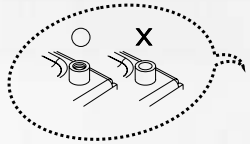
Install the Clip on Motherboard

AMD AM2 Motherboard

Remove the retention frame from motherboard.



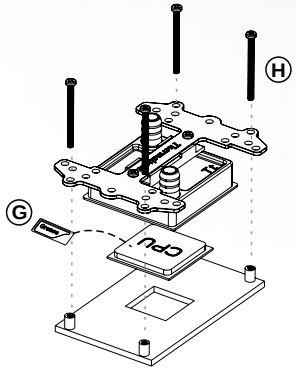
Components for AMD AM2:
G-Thermal compound
H-38mm screws



Check Your Back Plate!
A. If the back plate does have threaded stand offs, please continue with standard installation.(5-3-4 A)
B. If the back plate does NOT have threaded stand offs, please continue with 5-3-4 B.

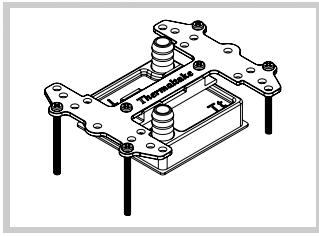
Install Waterblock on Motherboard

Exploded View



Completed View

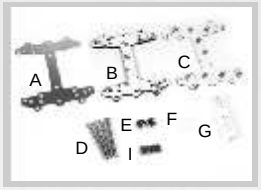
1.Apply a thin layer of thermal compound(G) onto the processor.
2.Place waterblock on the processor.
3.Secure the waterblock on the motherboard by using screws(H).



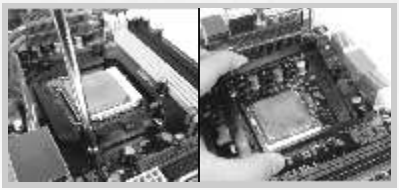
B. Install by clips bundled in package

Install the Clip on Motherboard

AMD AM2 Motherboard



Components for AMD AM2:
A-Metal H-type clip
B-Cushion
C-Insulator
D-50mm screws
E-Thumb nuts
F-White washers
G-Thermal compound
I -Stand offs



Remove the retention module from the motherboard.

Remove the back plate on back side of motherboard.

Tear off the tape on the back of the insulator (C) and place it on the metal H-type clip(A).

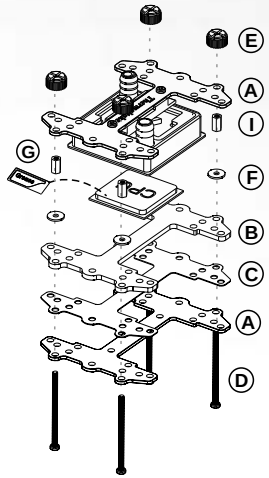
Note:
Placing the cushion onto the motherboard with the adhesive will prevent you from removing the cushion in the future. If you are planning to remove the cushion for further use, please don't remove the protective tape.

Combine the insulator(C) and the cushion (B) using the adhesive. Stick the metal H-type clip(A) with the insulators (BC). Tear off the protective layer to adhere it onto the motherboard.

Attach H-type clips(including ABC) on the back side of motherboard.

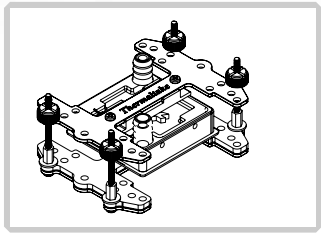
Install Waterblock on Motherboard

Exploded View

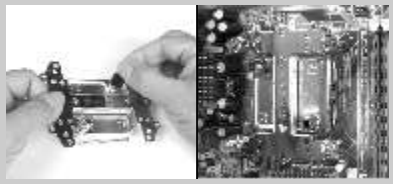


Completed View

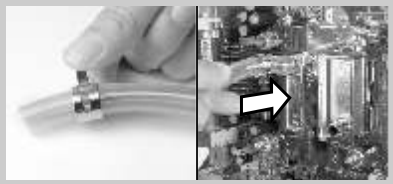
1.Insert the screws (D) through the Clip(ABC) into the two holes on the Motherboard.
2.Put the washers (F) along the screws to prevent the electric current.
3.Put the stand offs (I) along the screws to fix the screws on the motherboard.
4.Apply a thin layer of thermal compound(G) onto the processor.
5.Place waterblock on the processor through the screws and fix it by thumb nuts(E).



5.4 Install Water tube



Remove black rubber caps from the waterblock.



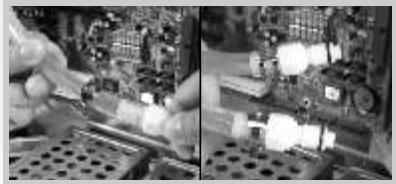
Insert the hose clip through the tube. Connect the tube with the waterblock.

Use pliers to tighten the hose clips. Repeat the steps for the other side.

Firs determine the length required for tubing from waterblock to the main unit. Then cut the tubing accordingly.

5.5 Install Quickconn Connecter

Insert the hose clips and male quick connector through the tube.

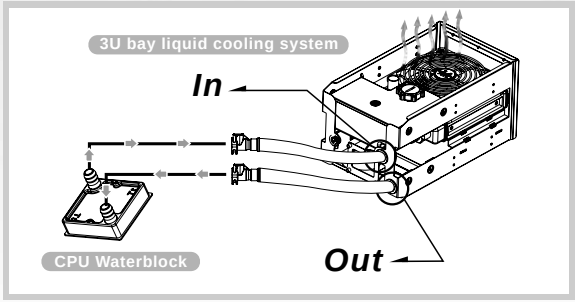


Use pliers to tighten the hose clips. Repeat the steps for the other side.

Connect the 4-pin connector of main unit to power supply.

5.6 Connect the Quickconn connector

Connect the
Quickconn connector.



5.7 Refill Coolant

Open the cover of liquid tank.

Fill the tank up with coolant.

Important notice :
Please use the refill bottle included when filling coolant in order to prevent the system damage caused by coolant overflow.

Turn on the PC power switch.

Liquid level will decrease when you power on the system, please keep filling coolant until the tank is filled up.

Important notice :
The coolant should not be up to the high water level to avoid the overflow problem.

Please make sure liquid is flowing continuously and smoothly within the tube.

Close the cover of liquid tank.

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Adjust the fan speed.

Turn off the PC power switch.

Note:
1. If bubbles are forming within the tubing, you may tap the tubing gently to remove them until all are gone.
2. After installation is completed, please ensure there are no bent tubings.

5.8 Power on the system

Turn on the PC power switch.

Installation complete.

Important Notice :

Please pay attention to the following,
1. DO NOT open the cover of liquid tank when system is on.
2. When replacing the coolant, open the tank cover after 30 minutes of system off.
3. Make sure the system turns off every time when refilling the coolant.

5.9 Schedule Maintenance

Performing scheduled check up for the liquid cooling system will ensure optimal cooling performance!

Pump

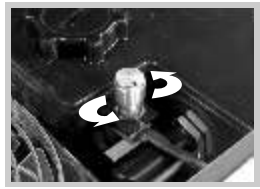
.Ensure pump is working proper

Water Tank

Check for water level within the water tank. If the liquid level is below the low level, please follow the installation steps on manual to refill the coolant.
(we strongly recommend checking the water level once a month)

Note: It is recommended that coolant to be replace once every 6 months. Depending on the workload of the system, coolant may need to be refilled more often.

Fan Assembly



1. Check if LED is working properly
2. Make sure fan controller is working properly.
3. Make sure fan is operating properly without abnormal noise.

Tubing

Tubing within the system must not be bent. Replace tubing if necessary.

Tubing Connections

Make sure each connection is tightly secured and that there are no sign of leakage.

5.10 Liquid Cooling Q&A

Q: How often do I have to refill the system?

A: Depending on the usage or surrounding environment, we strongly recommend checking the water level once a month to ensure optimal performance. If the liquid level is below the low level, please follow the installation steps(P.39) to refill the coolant.

Q: How do I uninstall the waterblock?

A : There are no special instruction when un-installing. Please refer to installation and reverse the procedures.

Q: Can I add another liquid cooling upgrade kits on my liquid cooling system?

A : Yes, there are numerous upgrades available for all different components in PC. Please visit www.thermaltake.com for more information.

Q: How do I know if the pump is working?

A: Place your hand on the pump. If the pump is operating, the pump should vibrate gently.

Q: I'm running low on coolant. What's happening and what can I do?

A: The Performance Coolant included with main unit contains water based material so it is subject to natural evaporation. It is normal for the coolant to decrease depending on the usage or surrounding environment. For best performance, we highly recommend replacing the coolant every 6 month.